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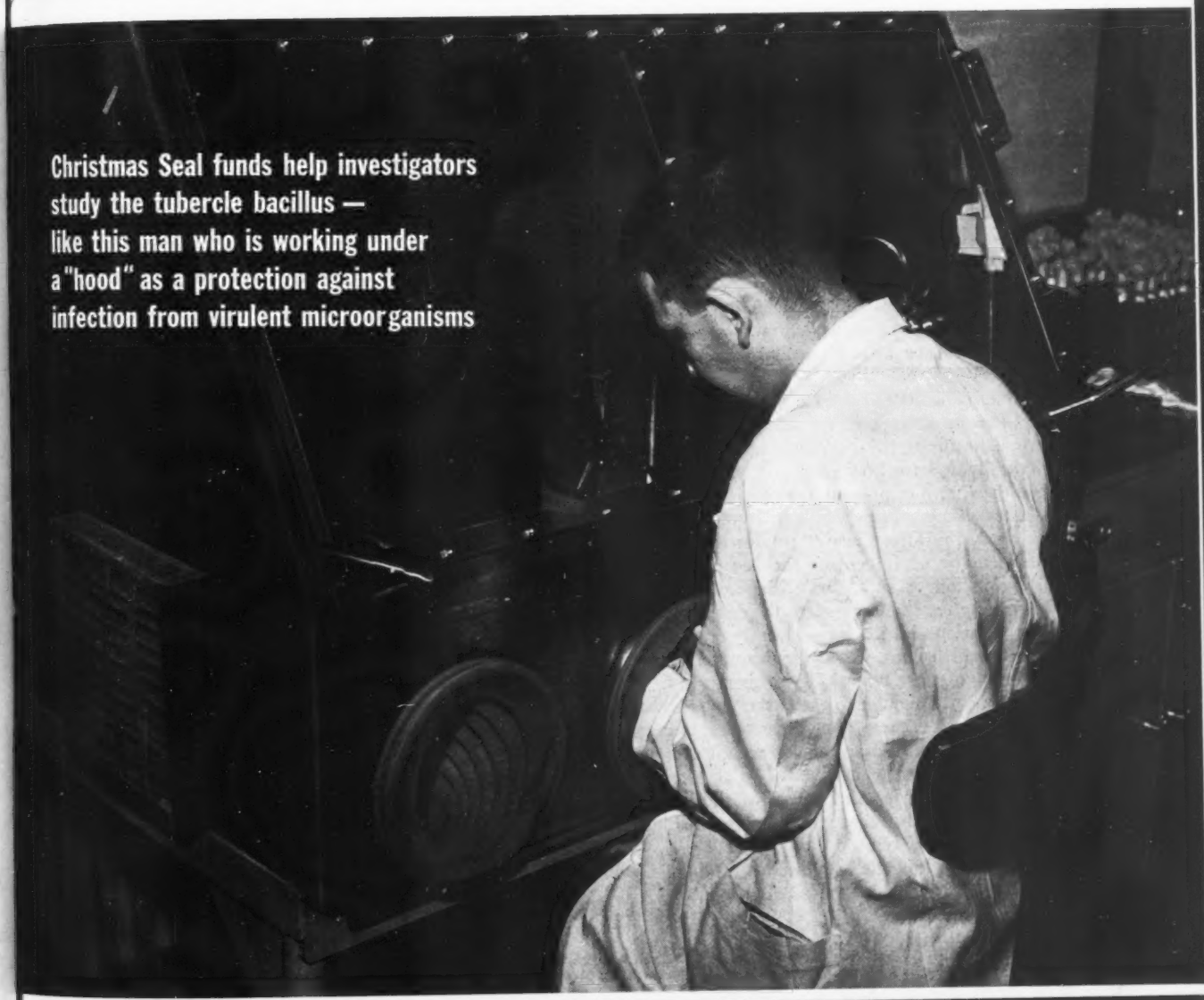
NATIONAL TUBERCULOSIS ASSOCIATION

JUNE 1957



Christmas Seal funds help investigators study the tubercle bacillus — like this man who is working under a "hood" as a protection against infection from virulent microorganisms

EDITORIAL

We Thought We Knew

By Floyd M. Feldmann, M.D.

Medical Director, National Tuberculosis Association

Twenty-five years ago everybody "knew" that almost any kind of tuberculin test would separate those who were infected with tubercle bacilli from those who were not. We also "knew" that the size of the reaction meant nothing in relation to the clinical state. Now, as a result of many separate research studies both inside and outside the laboratory, we know we were wrong on both counts. Proper dosage of standardized tuberculin is necessary to avoid false negative and false positive reactions, and the size of the reaction is related to the probability of clinical disease in the patient and also in his contacts.

This opens up new possibilities which could not have been visualized within the earlier, narrow concepts. Some tentative estimates are already available on the risk of developing active disease if you are a tuberculin reactor, and with some refinement of these estimates, more accurate forecasting can be attempted. An added dividend will be criteria for determining which people should be re-examined periodically and for how long.

In those days, any competent radiologist could make a diagnosis of tuberculosis, or exclude it, from a quick examination of an X-ray film. Careful studies in recent years have confirmed the usefulness of the X-ray, but no one relies on it any longer as a single diagnostic procedure. Duplicate reading tests have revealed the subjective side of X-ray interpretation and the significant errors inherent in detection of small lesions. It is also common knowledge now that what looks like typical TB turns out to be something else frequently enough to make the experts wary.

Until sulfanilamide came along, we were taught that there was little chance that any drugs would ever be discovered for internal use which would be able to destroy bacteria without destroying the tissues of the body. New drugs came in a flood once that idea was dispelled by some inspired laboratory research.

Not so long ago a tubercle bacillus was a tubercle bacillus. We knew about bovine, avian, and some other strains, but a typical acid-fast bacillus in one patient's sputum was assumed to be a duplicate of one found in some other patient's sputum. With the beginning of drug treatment and the discovery that these germs could develop resistance to practically all drugs, a feverish interest developed in the intimate details of the life processes in *Mycobacterium tuberculosis*. It was soon discovered that there are many differences between strains, and evidence has also been accumulating rapidly that other bacteria resembling tubercle bacilli can produce tuberculosis-like disease.

Until 1948, very few people even suspected that bacteriophages, the viruses that attack bacteria, were ever associated with tubercle bacilli, even though their relationships to other bacteria were well known and much investigated. Belatedly, we have found out that there are bacteriophages which act on the tubercle bacillus.

Little by little we have been adding to our store of useful information, sometimes by fortuitous circumstance, often by direct attack. Fortunately, some of our important beliefs have been confirmed many times over. For instance, it has been well established that contacts of cases have a high risk of developing tuberculosis and that persistent follow-up is well worth the effort. But major advances have come much too slowly to the field of tuberculosis control. Perhaps Koch's demonstration of the tubercle bacillus in 1882 led to some overconfidence and a feeling that this major piece of information was all that was needed. The continuing prevalence of tuberculosis as a major disease emphasizes our acute need for more and more precise information and understanding.

Why not extend and expand our research potential to the limit of our abilities? Why not speed up the day when we will have exact and reliable facts—when we can say with confidence we *know* how to make eradication of tuberculosis a certainty?

bulletin

NATIONAL TUBERCULOSIS ASSOCIATION

VOL. 43 No. 6

Published monthly except August at 404 North Wesley Ave., Mount Morris, Ill., by the National Tuberculosis Association for persons interested in public health and administrative aspects of tuberculosis control, and made possible through the annual sale of Christmas Seals. The editors welcome articles for possible publication. If any article deals with a subject on which there may be differences of opinion, the BULLETIN will be glad to consider presentation of varying opinions in the same or subsequent issues. Editorial Office: 1790 Broadway, New York 19, N.Y.

ELLEN LOVELL, Editor; GRACE JACKSON, Managing Editor

Second class mail privileges authorized at Mount Morris, Illinois.

Tomorrow's Research

If We Believe That Medical Research in Tuberculosis Is Still Vitally Important, We Must Recognize What Needs to Be Known and How It Can Best Be Found Out

by Robert H. Ebert, M.D.

Dr. Ebert is professor of medicine, Department of Medicine, Western Reserve University, Cleveland, as well as director of medicine at the University Hospitals of Cleveland. Formerly he was professor of medicine, Department of Medicine, University of Chicago. He obtained his Ph.D. from Oxford University and his M.D. from the University of Chicago. He is chairman of the ATS Committee on Medical Research. His article is sponsored by the National Conference of Tuberculosis Workers.

The Oxford English Dictionary defines research as "an investigation directed to the discovery of some fact by careful study of a subject." This is a broad and indiscriminate definition in terms of what is useful and what is meaningful. Obviously one can do a careful study of any problem. Counting the commas in a Shakespearean tragedy is research, just as is measuring the energy released by splitting the atom. Therefore it is necessary to consider what is "productive research," for most of us are interested in medical research that is likely to be of immediate or remote value to the human race.

There are three important ingredients of productive research. First, there must be a major problem worthy of investigation. Secondly, some portion of the major problem must be selected for intensive study. And finally, there must be techniques which enable the investigator to solve a specific problem.

Is tuberculosis still a major problem, and can productive research continue in this field? The specific cause of this disease is known, much is known of the natural history of the disease, and potent drugs exist which will attack the tubercle bacillus. Is it worth time and money and manpower to explore further the intricacies of this disease, or do we know enough so that we can close up shop and attack some other major medical problem? This is a question which must be examined coldly and critically.

Most of us would agree after mature consideration that the problem of tuberculosis has not been solved. No truly potent vaccine exists which will prevent infection, case finding is cumbersome and expensive when the search is directed toward detection of early infection, no quick and easy method exists for determining "activity of infection" in the absence of a positive sputum, and treatment failures continue to occur in spite of potent drugs. We are a long way from eradication of the disease, and until that goal is clearly in sight, productive research can be done in the field of tuberculosis. There is another reason why productive research is possible in this area. The problems of one disease are intimately related to those of another. Study of the growth and metabolism of the tubercle bacillus may contribute useful information to investigators interested in cancer, and studies of tuberculin hypersensitivity are related to the understanding of rheumatic fever and nephritis. Similarly, work in fields remote from tuberculosis may contribute enormously to our understanding of this disease.

Areas of Study

Having established that the disease tuberculosis remains a major problem, what are some of the areas suitable for intensive study? Since tuberculosis is an infection, two broad areas of investigation immediately come to mind: the parasite, or specifically the tubercle bacillus, and the reaction of the host, or patient, to infection.

Let us consider the parasite first. What more must we know about the tubercle bacillus? Basically we are interested in how to destroy the tubercle bacillus without undue injury to the patient. This resolves itself into a problem of differential poisoning. How can we poison the tubercle bacillus without poisoning the cells which comprise the human body? To accomplish this task effectively, we must know more about the metabolism of the tubercle bacillus and where in its metabolic cycle it can be attacked. Antimicrobial agents such as streptomycin and isoniazid will inhibit the growth of tubercle bacilli and under certain circumstances even kill the bacilli. But we understand too little about how these drugs act. If we understood more we could devise more potent and effective drugs.

Tubercle bacilli can exist within the body at a low level of metabolic activity, or in what might be termed a resting stage. We know that such organisms are far less susceptible to the drugs in common use. We must devise means of attacking these resting organisms. The limiting factor of all drug treatment of infections is the development of bacteria which are resistant to the drugs being used. The phenomenon of bacterial resistance is poorly understood, and we need to know more about the chemistry of the bacillus before we can explain and perhaps prevent the development of drug resistance. These are a few of the problems concerning the tubercle bacillus which are worthy of investigation and which are being explored by capable investigators.

No Magic Bullet

If a drug existed which could kill all the tubercle bacilli invading the human host, no further investigation would be necessary. Since no such "magic bullet" exists, it is pertinent to investigate the reaction of the patient to infection and to arrive at a better understanding of how the body combats the tubercle bacillus. It is important to know more about immunity to

the disease and the nature of hypersensitivity to products of the tubercle bacillus. It is important to understand the indications and contraindications for surgical removal of tuberculous lesions. All of these questions relate to the reaction of the host to infection.

Reaction of Host

For many years investigators were so preoccupied with the specific bacteria which caused a disease that little attention was paid to the reaction of the host to infection. We are now much more concerned with why one patient does well and another does poorly following infection by the tubercle bacillus.

We know that the resistance to infection varies, and we are interested in why. The inflammation which results from infection is not governed only by the number and virulence of the tubercle bacilli which invade the host, but is modified by the activity of the hypothalamus, the pituitary, and the adrenal, to name only a few factors. The intricate relationship between immunity and the nonspecific control of inflammation by the glands of internal secretion is a problem which merits much study.

Specific immunity to tuberculosis develops as the result of infection, but it is difficult to measure and further research is needed to understand more completely the nature of acquired resistance to tuberculous infection. Although BCG affords partial protection against tuberculous infection, a more potent vaccine is desirable, and better understanding of immune mechanisms could contribute to this goal.

Surgery

Surgical treatment of tuberculosis has become more rather than less important with the development of antimicrobial agents. Perhaps the chief limiting factor in the surgical treatment of tuberculosis of the lung is the status of pulmonary function. It does little good to remove a tuberculous cavity surgically if the patient becomes a pulmonary cripple as a result. To avoid this, careful evaluation of pulmonary function before and after surgery is essential. Tremendous strides have been made in this area the past ten years, but much remains to be learned about the physiology of the lung.

The list of subjects suitable for research in the field of tuberculosis is much more extensive, but a number of important areas have been mentioned and serve as examples of the need for further knowledge. In the definition of "productive research," it was noted that suitable techniques were necessary to solve specific problems. No attempt will be made to describe the varied techniques which are used today for the study of tuberculosis. Suffice to say that all the techniques of modern biochemistry, immunology, physiology, biophysics, and related fields are available and are being used to study particular problems related to tuberculosis.

The problems which have been discussed are areas of active research, and are being supported by national, state, and local tuberculosis associations, but more money is needed. Medical research is expensive, and the training of investigators is expensive. As a result, research personnel are attracted to medical fields which will supply adequate financial support. If tuberculosis associations are convinced that tuberculosis remains a major problem, and that medical research can contribute to the final eradication of this disease, then they must be prepared to use more of their resources to support research.

Time to Test

THIS new exhibit on tuberculin testing, which incorporates the latest information on technique and interpretation, was shown for the first time at the NTA Annual Meeting last month. Large color transparencies show the Mantoux test being done and types of reactions commonly encountered. The viewer may check his own interpretation on a special information folder, which also carries the pictures in color. The exhibit was prepared by the National Tuberculosis Association and the American Trudeau Society, with photographic assistance from the Veterans Administration.

Seals Support Research

Forty Investigators Will Pursue a Wide Variety of Medical Research Projects This Year with Grants from the National Tuberculosis Association

By Agnes Fahy

Associate, Public Relations Division
National Tuberculosis Association

The laboratory was in the basement, a room not too well lighted and certainly not large. The equipment on the whole was not of the latest model. In fact, the central piece bore the earmarks of home construction.

It was a crude sort of laboratory, in some respects, but to the man with rolled-up sleeves seated at the "hood" in the center of the room, measuring tubercle bacilli into serum-filled tubes, it was like seventh heaven.

It was Wednesday afternoon, his afternoon "off," and he had hurried down to the basement of the hospital to take up work that was his own in that special sense that only a brain child is.

The investigator was Morgan Berthrong, M.D., and the modest laboratory was in the basement of the Glockner-Penrose Hospital, Colorado Springs, Colo. The fact that, on the afternoon free from his duties as pathologist at the hospital, Dr. Berthrong was able to spend his time pursuing an idea on immunity to tuberculosis was due to a Christmas Seal grant from the National Tuberculosis Association.

The Colorado physician is one of 40 investigators who will receive a medical research grant for the year beginning July 1. The studies include test tube experiments in the laboratory; animal studies with drugs; clinical studies which embrace not only tuberculosis but also emphysema, sarcoidosis, and cor pulmonale.

The total to be expended for the grants will be approximately $230,000. The amount of the individual grants ranges from $2,160 to $12,944. (These sums include a percentage paid the institution where the work is being done for overhead expenses.) The total includes the percentage of Christmas Seal funds allocated by the National to medical research and also special contributions to the NTA for research from a number of constituent and affiliated associations. In addition to this amount, several associations are expending funds for research projects in their states, which are not channeled through the NTA. (See page 87.)

How the Money Is Spent

Grant monies are expended in a variety of ways. It is the exception when any of it goes toward the salary of the principal investigator, but it may enable him to hire an assistant or a technician who can carry on with the details of the study under his (the principal investigator's) supervision; it may enable him to purchase a rhesus monkey or a litter of white mice or any of a number of items which come under the head of "consumable" supplies, such as test tubes, culture plates, and animal feed.

The grant may make it possible for the investigator to obtain the services of an expert dishwasher. This can be a matter of crucial importance. Glassware that a Dutch housewife would consider immaculate could be the ruin of a scientific experiment. There must be absolutely no contamination of the test tubes.

Part of the grant to Dr. Berthrong goes to the employment of a dishwasher whom he himself has trained in the care of the glassware used in his laboratory. The grant to Dr. Berthrong is one of the smallest requested this year. But it enables him to have the assistance of a washer and of a technician, to purchase guinea pigs and food for them, and to take care of other odd items essential to the conduct of his experiment.

The study in which Dr. Berthrong is engaged is a ticklish one, but one which may have far-reaching significance. He wants to find out whether certain cells of the body hold a clue to resistance to tuberculosis.

The Puzzle of Immunity

Immunity is one of the big puzzles in tuberculosis. The disease invokes a response similar to that in other infectious diseases and antibodies are present, but they seem to have nothing to do with immunity. Dr. Berthrong is working on the theory that immunity may be a question of cellular response rather than antibody-antigen reaction.

On the particular Wednesday afternoon, Dr. Berthrong was planting cultures of tubercle bacilli in monocytic blood cells, cells which have been reported to have a peculiar power over the tubercle bacillus. Some of the cells were taken from normal guinea pigs and some from guinea pigs that had been made immune to tuberculosis.

Working under a "hood" of his own construction—a glass, boxlike structure with appertures for the hands and arms but protecting the investigator from breathing tubercle bacilli—Dr. Berthrong counted out specific numbers of infected cells into test tubes containing guinea pig serum for "food." Each tube also contained penicillin and streptomycin. The penicillin was to kill any extraneous microorganisms that might contaminate the tube and spoil the experiment. The streptomycin was to take care of any possible stray tubercle bacilli outside the monocytes. Streptomycin in low concentration, it seems, will not penetrate the cell. Isoniazid could not be used for this purpose because it can work its way into the cell.

On the basis of the difference, if any, between the reaction of the cells from normal and immune guinea pigs to the tubercle bacilli with which they are infected, Dr. Berthrong will be able to gain a better idea of the role

of the monocyte in resistance to tuberculosis. And this will be an important addition to the fund of knowledge necessary to fit together the pieces which will explain tuberculosis immunology.

The study of Dr. Berthrong is but one example of the dedicated investigator who is working on unsolved problems in tuberculosis and related fields with the aid of Christmas Seal grants.

Not far from the Colorado Springs laboratory, at the University of Colorado Medical Center in Denver, Dr. J. Carroll Bell, assistant director of the Colorado Foundation for Research in Tuberculosis, is studying one of the newer problems, one which has been encountered with the use of isoniazid in treatment.

It has been found that people vary in their ability to metabolize isoniazid, but that the rate of metabolism is constant with the individual. It has also been found that only "free" isoniazid—that is, isoniazid which is not broken down into metabolites but is excreted in its original form—is helpful to the patient. Thus, if a way could be found to maintain high levels of free isoniazid in the patient, the patient would derive greater benefit from the drug—and this is the problem to which Dr. Bell is directing his studies.

Since it has been reported that PAS (para-aminosalicylic acid) has the effect of raising the serum level of biologically active isoniazid when administered with isoniazid, Dr. Bell is conducting a series of tests not only with PAS but also with PABA (para-aminobenzoic acid), sulfonamide, and other compounds to find out what effect they have on isoniazid levels. Furthermore, he is working on a technique to find out what it is in PAS—and any other compound that has the same effect—which raises the amount of free isoniazid in the serum. Because one of the principal metabolites is produced by acetylization of isoniazid, it has been inferred that PAS interferes with this acetylization; but Dr. Bell's work indicates that another factor may be involved, and he is seeking to track it down.

One of the new studies this year is being aided by a special contribution from the Lancaster County Tuberculosis Association, in Nebraska. The association has contributed $1,000 toward the grant to Warren E. Engelhard, Ph.D., of the University of Nebraska, Lincoln. Dr. Engelhard is conducting experiments with trypsin to find out whether this enzyme can modify the virulence of tubercle bacilli.

A special contribution of $1,000 from the Ohio Tuberculosis and Health Association has been applied to the grant to Leon H. Schmidt, Ph.D., director of The Christ Hospital Institute of Medical Research, Cincinnati, who is studying tuberculosis and its treatment in the rhesus monkey.

NTA Annual Meeting

At the Annual Meeting of the National Tuberculosis Association, held in Kansas City, Mo., May 5-10, William M. Morgan, Ph.D., took office as NTA president, Dr. Theodore L. Badger as president of the American Trudeau Society, and Kenneth C. Ross as president of the National Conference of Tuberculosis Workers.

Because this issue of the *Bulletin* went to press before the meeting was held, a full report will appear in July, including highlights of the various sessions, the names of the other new officers, and the Trudeau and Will Ross medals winners.

The North Dakota Tuberculosis and Health Association has contributed $3,677 toward the grant to H. Stuart Willis, M.D., of Gravely Sanatorium, Chapel Hill, N.C., who is working on a tuberculosis vaccine made from an avirulent strain of tubercle bacilli.

The studies fall into seven broad categories. In addition, a grant has been made to the National Society for Medical Research. The investigators and their studies are:

Clinical: Dr. *Bell,* Mrs. Shirley H. *Ferebee,* Operational Research Section, Public Health Service, Washington, study of effectiveness of isoniazid in preventing tuberculous meningitis in children with primary tuberculosis; Julia M. *Jones,* M.D., New York University-Bellevue Hospital, New York City, treatment of extrapulmonary tuberculosis; Edith M. *Lincoln,* M.D., New York University-Bellevue Medical Center, New York City, the course and treatment of tuberculosis in children; Soledad *Morales,* M.D., New York University-Bellevue Medical Center, New York City, tuberculosis in adolescence; John K. *Lattimore,* M.D., Columbia University, New York City, chemotherapy of genitourinary tuberculosis.

Experimental Chemotherapy: Gardner *Middlebrook,* M.D., National Jewish Hospital at Denver, pathogenesis and chemotherapy of experimental tuberculosis; Walsh *McDermott,* M.D., and Robert M. *McCune,* Jr., M.D., Cornell University-New York Hospital Medical Center, New York City, host-parasite relationships in tuberculosis; Lloyd J. *Roth,* M.D., University of Chicago, metabolism studies of C14-labeled isoniazid; and Dr. *Schmidt.*

Immunology: Dr. *Berthrong;* Leon R. *Cole,* M.D., University of Southern California, Los Angeles, immune response to infection with tubercle bacilli; Max B. *Lurie,* M.D., University of Pennsylvania, Philadelphia, genetic resistance to tuberculosis in rabbits; Sidney *Raffel,* M.D., Stanford University, Stanford, Calif., immunity, virulence, and allergy in tuberculosis; Guy P. *Youmans,* M.D., University of Chicago, Chicago, antigenic relations between mycobacteria as determined by agar diffusion precipitin techniques; Florence B. *Seibert,* Ph.D., Henry Phipps Institute, Philadelphia, tuberculoprotein and polysaccharide antigens and antibodies in tuberculosis; Daniel L. *Weiss,* M.D., District of Columbia General Hospital, Washington, circulating antibodies; Wayburn S. *Jeter,* Ph.D., State University Iowa, Des Moines, passive transfer of delayed hypersensitivity; Dr. *Willis.*

Mycobacteria: Max S. *Dunn,* Ph.D., University of California, Los Angeles, chemistry of tubercle bacillus; Warren E. *Engelhard,* Ph.D., University of Nebraska, Lincoln, modifications of mycobacteria effected with enzymes; William *Steenken,* Jr., D.Sc., Trudeau Laboratory, Saranac Lake, N.Y., culture bank of tubercle bacilli; Hilda Pope *Willett,* Ph. D., Duke University,

(Continued on page 95)

How Much Are Local and Constituent TB Associations Spending on Social and Medical Research? To Find the Answers, the NTA Compiled a . . .

Report on Research

by Eleanor Connolly

Associate, Social Research Division
National Tuberculosis Association

Tuberculosis associations throughout the country spent $411,589 on medical and social research in the 1956-57 fiscal year. When this is added to the NTA research fund—which includes one per cent of the total Seal Sale, special contributions by associations, and a substantial contribution from the NTA's general fund—the total expenditure for research was $799,709—or 3 per cent of the 1955 Christmas Seal Sale.

Local and constituent associations contributed almost equally—$173,828 and $162,474 respectively. About half of these amounts — $75,287 — came from central research funds in Connecticut, Illinois, Iowa, Pennsylvania, and Wisconsin.

How the Study Was Made

This information was gathered from a questionnaire sent to all constituent associations last October by the Social and Medical Research Divisions of the National Tuberculosis Association. The amount spent on research, the number of projects, and a description of each were requested.

The interpretation of what constituted research was generally left to the executive of the association. With a few exceptions, all projects submitted as research were accepted as such. Those excluded were chiefly ones that the executive considered questionable.

The questionnaire did not ask for a breakdown between social and medical research projects. Instead, the Social Research Division decided this on the basis of the subject matter. Most medical research involves laboratory work or studies in the diagnosis or active treatment of disease. Where projects included elements of both medical and social research, such as case finding surveys, they were classified as social research, along with studies on the rehabilitation needs of patients, alcoholism, and recalcitrancy.

Out of a total of 113 projects, 76 were devoted to medical research. This may be a minimum figure, since in a few states, grants were either not designated for specific research at the time of bequest or it was not possible to tell if the grant was for one or more projects.

Rehabilitation Project

A particularly extensive social research project is being carried on in California, where the rehabilitation needs of tuberculous patients are being studied. The California Tuberculosis and Health Association contributed $11,425 to this project in 1956-57 and the Office of Vocational Rehabilitation $8,600. A wide variety of data have been gathered on the characteristics of patients, including information on alcoholism.

In New York City, a three-year study has been under way since January, 1956, to determine if the complex needs of unhospitalized tuberculosis patients in a city clinic can be met through a coordinated neighborhood approach involving lay and professional groups. This project, in addition to receiving funds from the New York Tuberculosis and Health Association, has also had substantial support from the Office of Vocational Rehabilitation.

Two studies are being conducted in the area of epidemiology and case finding in New York State—one by the Queensboro Tuberculosis and Health Association and the other by the Buffalo and Erie County Tuberculosis Association. These are both follow-up studies of selected industrial populations to determine the incidence of chest pathology in these individuals as seen in periodic X-ray films over a period of several years.

In North Carolina, the constituent association and 40 local associations are supporting a five-year study of tuberculin reactors among all children over the age of one and the total adult population in one county. The Public Health Service has supplied the testing team in this study. Both the intradermal test using PPD (5 T.U.) and the patch test will be used on all individuals, and X-rays will be taken of all reactors.

In Kansas City, Mo., testing of kindergarten and first-grade school children with tuberculin and histoplasmin is in its tenth year. Children who react to either test are X-rayed. In 1956-57, this project received $10,000 from the Heart of America Tuberculosis Association (formerly the Kansas City Tuberculosis Society). The PHS has supplied the antigens, and the public schools have contributed to the organization of the project. Analysis of this work is being done at the University of Kansas Medical Center by means of a grant from the NTA research fund.

Another study of tuberculin reaction rates in school children is being undertaken in selected California counties at a cost of over $10,000, which will be met by the county associations involved.

TB in Children

Medical research being aided by grants from constituent associations include both clinical and basic. An example of the former is to be found in Puerto Rico, where the association is giving a grant to Dr. Priscila Diaz de Garau, of the Alejandro Ruiz Soler Tuberculosis Hospital in Rio Piedras, for a study on the treatment with drugs of tuberculosis in children.

Dr. Diaz is using two regimens of drugs — isoniazid and PAS (para-aminosalicylic acid) and isoniazid and streptomycin—in a comparative study. She is including in her study not only primary tuberculosis, but also such progressive forms of the

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disease as hematogenous tuberculosis, tuberculous meningitis, and tuberculosis of the bone.

The Anti-Tuberculosis League of Cleveland and Cuyahoga County, Ohio, has made a grant of $5,000 to Dr. Emanuel Wolinsky to further the study of atypical acid-fast bacilli. Dr. Wolinsky, who is with the research department of Cleveland City Hospital, was chairman of the American Trudeau Society committee which sponsored a cooperative study of these mycobacteria which morphologically resemble the tubercle bacillus but in certain respects are distinct from them. These microorganisms have been recovered from a number of patients presumed to have tuberculosis. It is doubtful whether some of them can cause disease in man, but others have been reported to cause a pulmonary disease. More information is needed about the bacilli, their pathogenicity, and their transmissal.

The $92,094 expended by the California Tuberculosis and Health Association for medical research includes grants to Dr. C. M. Carpenter, of the University of California School of Medicine, Los Angeles, who is working on a rapid diagnostic test for tuberculosis, and is also working on the development of a vaccine from a strain of tubercle bacilli killed by irradiation; to Dr. Emil Bogen, at Olive View Sanatorium, Olive View, Calif., who is studying bacteriophages, those viruslike particles which attach themselves to specific bacteria and are helpful in identifying different strains of bacteria; and to Dr. Sidney Raffel, of Stanford University Medical School, Stanford, Calif., for studies in immunity and allergy.

Expenditures Reported by Constituent and Local Tuberculosis Associations for Medical and Social Research

Constituent Association	Total		Medical Research		Social Research	
Total	$411,589	(113)	$265,687	(76)	$145,902	(37)
Brooklyn	5,000	(1)	5,000	(1)	—	
California	154,236	(47)	92,094	(29)	62,142	(18)
Chicago	27,036	(6)	27,036	(6)	—	
Connecticut	5,000	(1)	—		5,000	(1)
District of Columbia	7,000	(1)	—		7,000	(1)
Illinois	34,177	(7)	34,177	(7)	—	
Iowa	25,085	(5)	21,685	(4)	3,400	(1)
Louisiana	1,000	(1)	—		1,000	(1)
Maryland	5,400	(1)	5,400	(1)	—	
Michigan	1,600	(3)	1,100	(2)	500	(1)
Minnesota	7,500	(1)	7,500	(1)	—	
Missouri	13,723	(5)	1,450	(1)	12,273	(4)
Nebraska	2,200	(2)	1,200	(1)	1,000	(1)
New Jersey	5,000	(1)	5,000	(1)	—	
New York City	40,215	(5)	5,000	(1)	35,215	(4)
New York State	10,350	(2)	3,750	(1)	6,600	(1)
North Carolina	10,422	(5)	5,000	(4)	5,422	(1)
Ohio	21,000	(6)	21,000	(6)	—	
Oregon	2,500	(1)	2,500	(1)	—	
Pennsylvania	4,525	(2)	4,525	(2)	—	
Puerto Rico	3,000	(1)	3,000	(1)	—	
Queens	3,800	(1)	—		3,800	(1)
South Dakota	900	(1)	900	(1)	—	
Tennessee	8,070	(1)	8,070	(1)	—	
Virginia	1,950	(2)	1,800	(1)	150	(1)
Washington	3,400	(2)	1,000	(1)	2,400	(1)
Wisconsin	7,500	(2)	7,500	(2)	—	

Note: Numbers in parentheses indicate projects.

National Health Council Elects New Officers

At the annual meeting of the National Health Council, held in Cincinnati March 20-22, the following officers were elected:

Basil O'Connor, president-elect during the past year and president of the National Foundation for Infantile Paralysis, took office as president.

Dr. Norvin C. Kiefer, chief medical officer of The Equitable Life Assurance Society of the United States, was chosen president-elect.

The vice presidents are Leonard W. Mayo, director of the Association for the Aid of Crippled Children; Ruth B. Freeman, associate professor of Public Health Administration at the Johns Hopkins University School of Hygiene and Public Health; and Dr. James E. Perkins, managing director of the National Tuberculosis Association.

Franklin M. Foote, director of the National Society for the Prevention of Blindness, was elected secretary. Philip R. Mather, president of the American Social Hygiene Association, was elected to his eighth term as treasurer; and Herbert I. Wood, of the Chase Manhattan Bank in New York, was re-elected assistant treasurer.

Annual Meetings Planned for TB Conferences

The annual meeting of the Mississippi Valley Conference will be held October 10-12, in Omaha, Nebr. Dr. Floyd Feldmann, director of Medical Research, National Tuberculosis Association, will discuss "Tuberculosis Research 1957—What Can We Tell the Public?" Sessions will cover a wide range of topics, including the tuberculous alcoholic, case finding, and differential diagnoses of pulmonary diseases.

The 43rd annual meeting of the Southern Tuberculosis Conference will be held at Birmingham, Ala., October 2-4. Dr. Feldmann will also speak at this meeting; he and James Stone, executive secretary of the NTA, will discuss "The Road Ahead."

A Look at Emphysema

With Chronic Pulmonary Emphysema Apparently on the Increase, We Need to Learn Much More Than We Now Know About Its Cause and Treatment

by John H. McClement, M.D.

Dr. McClement is visiting physician in charge of the Chest Service, Bellevue Hospital, New York City, and associate professor of medicine at the College of Physicians and Surgeons, Columbia University. Formerly he was on the medical school faculties of Cornell University and the University of Utah. He received his M.D. from the University of Rochester School of Medicine and Dentistry. His article is a contribution from the Committee on Medical and Public Relations of the American Trudeau Society.

The sad, wheezing, slightly bluish middle-aged man, who is short of breath after the slightest exertion, is well known to most medical practitioners. Although accurate vital statistics on the incidence of chronic pulmonary emphysema are not available, many students of this disease believe it is being encountered with ever-increasing frequency.

A complete explanation for such an increasing morbidity from this disorder cannot be given, but some possible reasons for it can be identified. Emphysema is predominantly a disease of men past 40 years of age, and the steady increase in the relative size of this group in our population is providing a growing pool of susceptible individuals.

For at least two reasons, the widespread use of effective antibiotics may contribute to the increase in the number of patients with this malady. First, the fibrosis which results with control of a tissue-destroying infectious disease of the lung like far-advanced pulmonary tuberculosis somehow predisposes to the development of the emphysema. Secondly, clinical experience indicates that pulmonary infection is the principal cause of death in patients with emphysema. Without effective antibiotics, it seems inescapable that the group of persons living with emphysema would be smaller. Indeed, before appropriate chemotherapy was available, many emphysematous individuals must have died of pulmonary infection even before their disability from emphysema was sufficiently advanced to be easily diagnosed.

It has also been suggested that the increased inhalation of cigarette smoke and other irritants may contribute to the earlier onset of disability in this disease; if this is so, it may also contribute to an apparent increase in the number of cases. Some apparent increase in this disease may also be attributed to a greater awareness of it and to its more frequent accurate diagnosis by physicians.

Need for Reassessment

If this already very important and disabling disease is becoming more common, we periodically need to identify what we know about it and where our knowledge is incomplete. Such reassessments may help to indicate areas where research or program development should be directed for better control and the eventual prevention of this disorder.

Most of the pathologic, bacteriologic, and physiologic information about this disease that has been collected to the present comes from the study of advanced cases.

From both physiologic and pathologic observations, it is known that in such cases the lungs are hyperinflated, that bronchial or bronchiolar obstruction is usually present, and that the elastic properties of the lung tissue are altered. Physiologic studies have shown that because of these structural changes, increased work is required for respiration, and the individual has a decreased capacity to ventilate his lungs. These defects in turn lead to shortness of breath on exertion and disturbances in the exchange of respiratory gases. It has also been shown that disturbances in gas exchange may arise from derangements in the distribution of blood and gas within the lung and from a decrease in the pulmonary capillary area available for the diffusion of oxygen.

Studies of pathologic material have provided some anatomic explanations for and confirmation of these physiologic disturbances. The secondary changes which advanced emphysema may induce in the heart have been studied, and the various mechanisms that lead to congestive heart failure in emphysema have been well identified. In many cases, bronchial infection contributes to the disability of this condition. Microbiologists and pathologists are characterizing the bacterial infections and the chronic inflammatory lesions encountered in the bronchi of some of these people.

Optimism Justified

Experience justifies some optimism about the therapy of advanced pulmonary emphysema. It has been repeatedly demonstrated that with proper and systematic control of bronchospasm, bronchial infection, and the cardiac complications, large groups of these patients can be maintained for long periods of time without progression of their disease and without the life-endangering acute episodes of infection or heart failure which are so common among unsupervised patients with this disease.

Techniques are also being constantly improved for the management of patients acutely ill because of infections or cardiac complications. Rehabilitation of some of these disabled individuals is being explored, and attempts are being made to define the social and psychologic handicaps that they must face. There is need for much more work along these important lines.

To summarize some of our present knowledge, it may be said that many physiologic, pathologic, and bacteriologic facts about advanced emphysema and its complications have been identified. This information has been well organized and provides a

fairly complete picture of this phase of the disease. Therapy based on these fundamental findings is rational and quite effective.

Gaps in Our Knowledge

It is apparent, however, to many that there are vast areas where our knowledge of chronic pulmonary emphysema is very incomplete. Information on the epidemiology of emphysema is only fragmentary and comes chiefly from observations of groups of patients who have sought aid for respiratory disability. In such groups it is known to occur more often in men than women and is seen most often in individuals over 40 years of age.

No information exists on the frequency or severity of this disease in various population groups. It is not known whether it is more common in urban or rural dwellers, in smokers or nonsmokers, or whether it varies among different socioeconomic groups. Emphysema is known to occur late in the course of various fibrotic pulmonary diseases, but exact statistics on even this point have not been obtained. Various estimates of the frequency of emphysema in autopsy series are available, but in these groups criteria for judging its extent or severity have not been developed and correlations with ante-mortem disability have rarely been made.

For several reasons, the epidemiologic approach, which has yielded such important and useful information in diseases such as tuberculosis, carcinoma, and syphilis, is difficult to apply in the study of emphysema. In the first place, we have no single simple test by which we can readily diagnose this disease in a study of large groups. Secondly, there is no single criterion that even all the students of this disease would accept as diagnostic of its early manifestations, and no acceptable explanation of its etiology exists. An epidemiologic study of emphysema at this time would be as difficult as a study of tuberculosis without the tuberculin test, the chest X-ray, or any knowledge of the tubercle bacillus.

The etiology of emphysema is obscure. As has been mentioned, it sometimes occurs in association with advanced pulmonary fibrosis from other causes, but in most cases no such widespread fibrosis is present. Many etiologic mechanisms have been suggested and explored, but the two most common hypotheses advanced to explain the onset of this disease are chronic obstructive disease of the small bronchi and degenerative changes in the pulmonary interstitial tissues from vascular changes or as a part of the aging process. Convincing evidence for either of these hypotheses is not presently at hand, and many observers have suggested that there may even be multiple pathogenetic mechanisms that operate to cause the condition we call chronic pulmonary emphysema.

The natural history of this disease has not been well worked out. We have had little opportunity to study in a prospective fashion the rate at which this disease develops nor the factors which eventually cause disability to appear. It is well known to clinicians that many patients have significant emphysema without disability for long periods of time, while others are repeatedly or continuously incapacitated. Obstructive changes in the bronchi often account for these differences, but why such changes occur more often, or more severely, in some patients than in others is unknown.

Until we know more about the etiology and natural history of emphysema, it seems doubtful that we will be able to do much to prevent it. It seems unlikely that we will be able to get much information on these aspects of the disease by further retrospective studies of the far-advanced syndrome.

In this presentation an attempt has been made not only to summarize in a general way what we know about chronic pulmonary emphysema, but to identify some places where our knowledge is deficient. It seems clear that this most important cause of respiratory insufficiency will ultimately be controlled or prevented only if an intensive attack by many different medical and social disciplines is encouraged and sponsored.

The 1958 NTA, ATS, and NCTW Annual Meetings will be held in Philadelphia, Pa., May 18-23.

An Urgent Appeal

Dr. Louis Roy, president of the Ligue Nationale Antituberculeuse, Port-au-Prince, Haiti, makes an urgent appeal to all affiliates of the National Tuberculosis Association and to all chest clinics and hospitals in the United States for any used, obsolete, or unemployed medical apparatus and equipment.

X-ray machines, fluoroscopes, oxygen tents and tanks, suction and pressure pumps, bronchoscopes, bronchospirometers, and similar equipment are desperately needed to improve diagnosis and therapy in the poverty-stricken rural areas of Haiti.

Haiti has a population of 3,500,000 people, of whom 85 per cent are illiterate. It has 13 general hospitals, with a total of approximately 3,000 beds besides those available for TB patients. All the general hospitals have outpatient clinics; only six of the clinics have X-ray equipment.

There is one ambulatory X-ray unit, purchased by the Haitian Red Cross a year ago.

There are approximately 500 tuberculosis beds already available or being constructed. Of this number, a 200-bed sanatorium is the only one well equipped. The Antituberculosis League built the first TB hospital in Haiti, from public funds, in 1942, as well as two other 50-bed sanatoriums. It has also provided a preventorium with 15 to 20 beds for children of TB patients, and is organizing occupational therapy programs for hospitalized patients.

In 1955, over 900 new cases of tuberculosis were discovered in the clinics. Due to lack of facilities, only 250 could be hospitalized.

In the hospitals, TB causes 16 to 20 per cent of the annual deaths. Outside of the hospitals, 85 per cent of deaths are of unknown cause.

Among city children under two years of age, 33 per cent have positive tuberculin reactions. In the cities, 1 to 2 per cent of the group tested by X-ray have active cases of TB.

If any association or hospital can donate equipment to Haiti, please send a list of such equipment to the NTA *Bulletin*. Crating and shipping costs will be paid by the Haitian Red Cross.

Indian Health Today

In Spite of a Spectacular Decline in the TB Death Rate Among Indians and Alaska Natives Since 1948, the Disease Remains One of Their Outstanding Health Problems

by James R. Shaw, M.D.

Dr. Shaw is chief, Division of Indian Health, U.S. Public Health Service. A commissioned officer in the Regular Corps of the Service since 1938, he has served as chief of the Department of Medicine in the San Francisco PHS hospital; medical officer in charge of the Los Angeles and San Pedro clinics; medical officer in charge of the PHS hospital in Detroit; and chief of the PHS's Division of Hospitals. He received his M.D. from the University of Michigan Medical School and has done postgraduate study at the Mayo Clinic.

Largely as a result of concentrated efforts of the Federal Government's health program for Indians and Alaska Natives, the death rate among Indians in this country from tuberculosis declined from 145.1 per 100,000 in 1948 to 49.1 in 1954—the latest year for which such data are available. Even so, their death rate from this cause is still five times that of the general population. Today, about 35 per cent of the entire budget for health activities for the Indians is being spent for the hospitalization of patients with this one disease. At least one half of all hospital beds available through the Indian health program, including those in contract facilities, are for tuberculous patients.

The New Administrators

By act of Congress, responsibility for the Indian health program passed from the Bureau of Indian Affairs to the U.S. Public Health Service on July 1, 1955. In taking over the duties of family doctor, community hospital, and local health department for some 370,000 American Indians and Alaska Natives, the Public Health Service inherited the task of continuing and accelerating the attack on extensive and dangerous reservoirs of disease existing on Indian reservations. With expansions and improvements being made by the Service in the Indian health program, death rates from tuberculosis probably are declining at an even faster rate.

Besides the high death rates, there are many significant indications of the unsatisfactory state of health among the Indians. Their average age at time of death is 39, compared with 60 for the general population. One third of their deaths occur before the fifth year of life, compared with only 8 per cent of the deaths in the general population. Of every 1,000 Indian babies born, 65 will not live to be even one year old. By way of contrast, in the general population only 27 infants per 1,000 die in the first year.

Although heart disease is the leading cause of death among Indians, as it is for the population as a whole, Indian death rates from preventable diseases are clearly out of line. Their death rate from influenza and pneumonia is nearly three times that of the general population, and from enteric diseases it is ten times greater.

Among the Alaska Natives—a group including Aleuts, Eskimos, and Indians in Alaska—health conditions are even less favorable than among the Indians in the States. These people are isolated not only by distance, but by weather and terrain as well. About one out of every 30 persons in the Alaska Native population is under hospital treatment for tuberculosis, and there is a high incidence of other diseases among them.

There is no single reason why preventable diseases take such heavy tolls among the Indians and Alaska Natives; rather, the condition of their health is the product of a combination of causes. Important among these are

Public health nurse Natalie Cota and her driver-interpreter Roy Huskey make a follow-up call on a tuberculosis patient at a typical Indian hogan at Red Lake, Ariz.

An Indian family pays a visit to the mobile unit in Leupp, Arizona, to get chest X-rays. Even very young children are included because of the high incidence of TB among them. Practical nurse Adele Mockta registers each group.

a way of life imposed by poverty, geographic and cultural isolation, and an environment which lacks facilities and resources that most Americans take for granted.

The Indian and Alaska Native populations for the most part are scattered over some 200 reservations in the United States and in isolated native villages in Alaska. Generally, Indian lands are sparse, arid, and too poor to offer the Indians the means for self-support at a decent standard of living. Most Indians live in rural slums. Many of their dwellings are overcrowded hovels, often consisting of but a single room. Sanitary facilities usually are crude and inadequate, and in an appreciable percentage of the population, such facilities are completely absent. In many cases, water is too scarce to permit minimal standards of cleanliness, and much of the water used for cooking and drinking is contaminated. Many Indian families must haul their water several miles.

The cultural and social isolation of the Indians has shut them off from the mainstream of social, medical, and economic progress. Surprising numbers among older age groups at isolated locations do not speak English, and in many Indian families not one adult can read and write. Relatively few Indians understand the causes of common communicable diseases, and many do not understand the simple day-to-day practices which tend to encourage good health and ward off infections.

It is true that opportunities for schooling are now available to virtually all Indian youths, and that the vast majority of school-age Indian children are in school. Better education, in the long run, will be a factor in better health for the Indians. But right now their health problems are urgent, constituting an added burden which they must bear and posing a serious threat to their individual and community well-being. We cannot wait for new generations of Indians who have a better educational foundation upon which to build good health. Whatever resources are available must be used now to improve the health of today's Indians.

To these difficulties posed by cultural differences and economic depression must be added those which arise from the dispersion of the Indian population, the scarcity of transportation and communication facilities in areas where they live, and the shortages of health personnel and facilities which long have plagued the Indian health program.

At best, providing even the ordinary public health services to a rural population is a costly operation. Because few if any other health resources are available to most Indians, they must be provided with a full range of services including all types of medical care and preventive health services. Many small hospitals, with relatively high overhead costs, must be maintained and operated in remote areas. Indian patients in need of major surgery and other specialist care often must be transported great distances at considerable expense to medical centers which can provide such services. Field health personnel, including physicians, dentists, public health nurses, sanitary engineers, social workers, and health educators, must travel enormous distances each year in order to provide

services to improve Indian health.

Although much remains to be done before health resources available to the Indians and Alaska Natives are adequate to their needs, gratifying progress is being made in the improvement of health services on the reservations and in Alaskan native communities. Since the transfer of the Indian health program to the Public Health Service, the number of physicians on duty has been increased from 126 to 227. The number of dentists has been increased from 40 to 72, and even greater increases have been made in some of the other categories of health personnel. The staff as a whole has been increased from 3,574 to 4,404.

One of the most serious obstacles in the way of improved health services for these populations was—and to a lesser degree still is—a critical shortage of housing for health personnel. In some cases medical and other staff members were recruited before provisions could be made to house them where they were needed most, and the Service took emergency measures to meet the shortage. More than 125 trailers were pressed into service as temporary dwellings, and 325 surplus government housing units were acquired by the Public Health Service for use in this program. These houses were disassembled at their sites, moved to new locations, and re-erected. Houses at one entire community at Camp Pickett, Virginia—an Army installation—were moved to new locations in the West in the largest project of this type ever undertaken. The need for adequate housing in the program is still great, and a building program now is under way to provide 71 permanent housing units for health workers.

The physical plant of the program, much of which is outmoded and in need of major repairs or replacement, is being improved as rapidly as possible. A survey of hospitals, housing, and other facilities made in 1955 indicated that more than $27 million would be required to meet the most pressing needs for construction and repair. Some of the necessary money already has been appropriated. Funds have been provided for new hospitals at Gallup and Shiprock, New Mexico; Sells, Arizona; and Kotzebue, Alaska. In addition, plans for 12 new health centers and clinics for preventive and outpatient services are in the hands of architects.

Many improvements are being made in the operation of the 48 Indian hospitals and eight Alaska Native Health Service hospitals in such areas as pharmacy services, medical records, food service, outpatient departments, and social services. Added emphasis is being placed upon disease prevention through such services as health education, nutrition, public health nursing, maternal and child health, and sanitation. Legislation to authorize the Public Health Service to construct and improve water works and waste disposal facilities, and to provide for better control of insect vectors of disease, is being considered by Congress.

To an increasing extent, the Public Health Service is augmenting therapeutic and preventive services through the use of private practitioners, community hospitals, and state and local health agencies under contract. Indian and Alaska Native patients are cared for under contractual arrangements in about 160 nonfederal hospitals. About 30 public health agencies are providing tuberculosis case finding and follow-up, public health nursing, health education, sanitation, and other preventive services under contract.

The Indians and Alaska Natives themselves are taking an increasingly active part in their health program. It is the policy of the Public Health Service to consult with tribal organizations to ensure that health services are provided in the most acceptable manner possible, and to encourage a maximum of responsibility and initiative. In addition, nearly 100 Indians are trained each year by the Public Health Service to fill positions in the program. Many of the program's practical nurses and dental assistants were trained in its schools.

That Congress and the American people are recognizing the necessity for providing better health services for our Indian and Alaska Native citizens is evident in increased financial support provided. But the deficit of health services available to these groups has been so great and of such long standing that it will take much more time, effort, and money to reach the goal of an acceptable level of health among them.

These young Navajo girls were discovered to be tuberculin positive and are now being treated with isoniazid at Many Farms, Arizona. Here, they get back into their clothes after having had their height, weight, and general health condition checked. Preventive health services such as these are playing a major part in reducing the tuberculosis death rate in Indians.

"Isn't it a pity they didn't have drugs like streptomycin in those days?"

DRAWING BY TOBEY
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Jules Saltman Joins Health Education Staff

Jules Saltman has joined the National Tuberculosis Association as a consultant in the Health Education Division. His chief responsibility will be the writing and production of health education materials.

In addition to extensive editorial experience on movie and TV, home-decoration, and science-fiction magazines, Mr. Saltman is co-author with Dr. Louis Portnoy of *Fertility in Marriage,* published by Farrar, Straus and New American Library. He has also written articles on medicine and health for various national magazines.

Minneapolis Requires Food Handler X-rays

Effective April 5, a Minneapolis Health Department regulation requires all food handlers to have an annual chest X-ray. Firms located in other areas that provide food for consumption in Minneapolis are also covered.

The regulation reads that any person "affected with tuberculosis in a communicable stage" is barred from employment in a food establishment. Food handlers may obtain X-rays from their private physicians, the Public Health Center chest clinic, or the mobile unit of the Hennepin County Tuberculosis Association.

Dr. Myers Retires from University of Minnesota

Dr. J. Arthur Myers retired recently from the University of Minnesota Medical and Graduate Schools, where he had been professor of medicine and public health. He served eight terms on the board of the National Tuberculosis Association, and was president of the NTA in 1937-38.

A member of the executive committee of the Minnesota Tuberculosis and Health Association, he is getting a research grant from them. In 1950, he received the Dearholt Medal from the Mississippi Valley Tuberculosis Conference. He is a consultant on tuberculosis and other chest diseases to the Students Health Service at the University of Minnesota, the Minneapolis General Hospital, the Veterans Administration, and the National Institutes of Health.

Saranac Lake Symposium

The Sixth Annual Symposium for General Practitioners on Tuberculosis and Other Chronic Pulmonary Diseases will be held in Saranac Lake, N.Y., July 8-12. It is approved for 26 hours of formal credit to members of the American Academy of General Practice. The registration fee is $40. Further information and copies of the program can be had by writing to Dr. Henry W. Leetch, general chairman, Symposium for General Practitioners, P. O. Box 11, Saranac Lake, N.Y.

World Medical Meeting

The 11th General Assembly of the World Medical Association will be held in Istanbul, Turkey, September 29-October 5, 1957. The sessions will include reports and discussion on medical education, medical ethics and international protection of civilian doctors in time of war, standards of medical care and medical service. The final program will be available in June, and can be obtained from Dr. Louis H. Bauer, secretary general, the United States Committee of the World Medical Association, 10 Columbus Circle, New York 19, N.Y.

Seals Support Research

(*Continued from page* 86)

Durham, N.C., metabolism of tubercle bacillus; Donald W. *Smith,* Ph.D., University of Wisconsin, Madison, chemical investigation of atypical acid-fast bacteria; Ernest H. *Runyon,* Ph.D., Veterans Administration Hospital, Sunmount, N.Y., pathogenic strains of atypical mycobacteria.

Bacteriophage: Edward N. *Azarowicz,* Ph.D., Johns Hopkins University, phage typing of Nocardia species; Seymour *Froman,* Ph.D., Olive View Sanatorium, Calif., effect of bacteriophage infection on the morphology of the tubercle bacillus; Vernon *Knight,* M.D., Vanderbilt University Hospital, Nashville, Tenn., mycobacterial phage and tuberculosis.

Nontuberculous diseases: Geoffrey L. *Brinkman,* M.D., Henry Ford Hospital, Detroit, incidence of diffuse obstructive emphysema in an industrial population; Harold L. *Israel,* M.D., University of Pennsylvania, Philadelphia, epidemiological and immunologic study of sarcoidosis; William F. *Miller,* M.D., University of Texas, Dallas, physiological studies on pathogenesis and nature of cor pulmonale and respiratory acidosis; Ralph *Tompsett,* M.D., Cornell University and Bellevue Hospital, New York, chemoprophylaxis in chronic pulmonary emphysema; M. Henry *Williams,* Jr., M.D., Grasslands Hospital, Valhalla, N.Y., natural history of emphysema.

Physiology: John W. *Irwin,* M.D., Massachusetts Eye and Ear Infirmary, Boston, hemodynamics of the pulmonary vascular system; Karl E. *Karlson,* M.D., State University of New York, Brooklyn, use of plastic material to repair injured windpipe; James K. *Alexander,* M.D., Baylor University, Houston, Tex., chemical regulation of respiration in chronic pulmonary disease; Duncan A. *Holaday,* M.D., Columbia University, New York City, the circulatory and respiratory effects of anesthesia during pulmonary resection; Aaron *Himmelstein,* M.D., Columbia University, New York City, study of pulmonary hypertension; C. J. *Martin,* M.D., Firland Sanatorium, Seattle, ventilation of lung lobes.

No Age Limit

TO encourage older people to participate in the 1956 Washtenaw County, Mich., X-ray survey, the Washtenaw County Tuberculosis Association asked the Senior Citizens Guild of Ann Arbor to help man the mobile unit with registration clerks. Here, William Bowling, treasurer of the association, instructs Guild members Mrs. Myrtie Mahaffy, Mrs. Philip Schenk, and Miss Maude Bowen. The resulting publicity brought many older persons to the unit, one 83-year-old woman reporting that it was the first chest X-ray she had ever had.

School Health Workshop to Be Held in Minnesota

The annual School Health and Safety Workshop, jointly sponsored by the Minnesota Department of Education and the Minnesota Tuberculosis and Health Association, will be held August 18-23 at Camp Lake Hubert, Minn. Designed to promote better school health programs, the workshop this year will be for elementary-school teachers.

Out-of-state staff members will include Sol Lifson, director of health education, NTA; Wallace Wesley, American Medical Association; Bernice Moss, U.S. Public Health Service; Wallace Fulton, Equitable Life Assurance Society; and Perry Sandell, American Dental Association.

Inquiries should be sent to workshop director J. G. Neal, Minnesota Department of Education, St. Paul.

College Health Conference

Eleven North Dakota colleges were represented at a college health conference held at the North Dakota Agricultural College, in Fargo, on March 6. The theme of the conference was "College Health Services." James A. Swomley, executive director of the North Dakota Tuberculosis and Health Association, arranged the program, which covered administrative problems, communicable disease control, and emotional problems.

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Edward Foss Wilson, former president and chairman of the board of Wilson & Company, Chicago, and president of the Illinois division of the American Cancer Society, has been appointed Assistant Secretary of Health, Education, and Welfare.

Dr. Henry I. Fineberg, president of the Queensboro Tuberculosis and Health Association and a director of the National Tuberculosis Association, has been appointed deputy commissioner of the New York City Department of Hospitals.

Miss Evelyn Zetter, R.N., has been appointed field service consultant in the National League for Nursing's Department of Hospital Nursing.

New officers have been elected by Trudeau Sections in the following states:

Arizona: president, **Dr. James C. Soderstrom;** vice president, **Dr. Richard O. Flynn;** secretary-treasurer, **Dr. Harold E. Kosanke.**

Florida: president, **Dr. Howard M. Dubose;** vice president, **Dr. Kip Gordon Kelso;** secretary-treasurer, **Dr. Frank Cline, Jr.**

Illinois: president, **Dr. George H. Vernon;** president-elect, **Dr. Karl H. Pfuetze;** secretary-treasurer, **Dr. Darrell H. Trumpe.**

Louisiana: president, **Dr. Spurgeon M. Wingo;** president-elect, **Dr. Peachy R. Gilmer;** secretary-treasurer, **Dr. Joseph K. Bradford.**

Mississippi: president, **Dr. Robert N. Brown;** vice president, **Dr. John C. Russel, Jr.;** secretary-treasurer, **Dr. H. K. Stauss.**

New Hampshire-Vermont: president, **Dr. Donald S. King;** vice president, **Dr. Donald B. Miller;** secretary-treasurer, **Dr. Walter B. Crandell.**

North Carolina: president, **Dr. Stuart Willis;** vice president, **Dr. Hamilton Stevens;** secretary-treasurer, **Dr. Robert F. Young.**

Oklahoma: president, **Dr. J. Floyd Moorman;** vice president, **Dr. Charles M. Harvey;** secretary-treasurer, **Dr. Robert L. Anderson.**

Pennsylvania: president, **Dr. Peter A. Theodos;** president-elect, **Dr. Katharine R. Boucot;** vice president, **Dr. Edgar L. Dessen;** secretary-treasurer, **Dr. E. Wayne Marshall.**

Texas: president, **Dr. Richard F. Allison;** vice president, **Dr. McIver Furman;** secretary-treasurer, **Dr. Hiram M. Anderson.**

Utah: president, **Dr. Wallis L. Craddock;** president-elect, **Dr. Horace L. White;** secretary-treasurer, **Dr. Thomas F. Keyes.**

John E. Egdorf, executive director of the Tuberculosis Institute of Chicago and Cook County, has been elected president of the Illinois Public Health Association.

The Rev. James A. Bowers, pastor of the First Baptist Church in Greenwood, S. C., has been named "Man of the Year" for 1957 by the Greenwood Rotary Club. This award is given annually to the person who makes the most significant contribution to the community.

Sol. S. Lifson, director of the Health Education Division of the National Tuberculosis Association, has been appointed a member of a special U.S. Public Health Service committee to advise Surgeon General Leon Burney on the administration of a program of public health traineeships for professional health personnel.

New officers have been elected by the following state tuberculosis associations:

Arizona: president, **Dr. Millard Jeffrey;** first vice president, **Dr. O. J. Farness;** second vice president, **Mrs. E. B. Thode;** treasurer, **Thomas A. Goodnight;** secretary, **Mrs. J. C. Soderstrom.**

Colorado: president, **Dr. Theodore K. Gleichman;** vice president, **Galen Rowe;** second vice president, **Mrs. Mary DuBois;** secretary, **Mrs. Belle Schroeder;** treasurer, **Lester Hall.**

Mississippi: president, **Mrs. C. D. Williams;** president-elect, **C. M. Schneidau;** vice president, **Dr. B. D. Blackwelder;** treasurer, **E. E. Laird.**

Oklahoma: president, **O'Benton Browning;** vice presidents, **Dr. Hugh H. Monroe** and **Dr. G. F. Mathews;** secretary, **Mrs. Lawrence Dronberger;** treasurer, **Joe C. Scott.**

Miss Clarissa Boyd, director of the Program Development Division of the National Tuberculosis Association, has been elected chairman of the National Advisory Committee on Local Health Departments.

Miss Marjorie Eastabrooks has been appointed health education director of the Anti-Tuberculosis League of King County, Seattle, Wash.

Mrs. Bertha O. Yenicek, who recently retired as consultant nurse for the division of tuberculosis control, Illinois Department of Health, was presented with the Alma B. Fringer Memorial Award at the annual banquet meeting of the Illinois Tuberculosis Association. The award is presented each year to an Illinois resident who has performed "truly outstanding service in the field of tuberculosis—over and beyond the call of duty."

Dr. William M. M. Kirby, formerly professor of medicine at the University of Washington, has been appointed professor and chairman, Department of Medicine, Indiana University Medical Center.